Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1-20. (Cancelled)

21. (Currently Amended) A recombinant fusion protein monomer comprising:

(i) a binding domain for binding a target molecule, ~~molecules~~ wherein the binding domain is an antibody, a ligand or a receptor that binds to a cell-surface antigen;

(ii) a functional group domain for eliciting a desired effect on the target molecule ~~or any cellular structures attached thereto~~, wherein the functional group is an enzyme; and

(iii) an extension peptide ~~selected from a the group consisting of:~~

~~(a) an extension peptide~~ located between said binding domain and said functional group domain and containing one or more uncoupled cysteine residues capable of forming disulfide bonds for dimerization,

wherein the one or more uncoupled ~~cysteines~~ cysteine residues are located at any position in the range of the first to forty-fifth amino acid residue from said binding domain ~~residue~~ directly bonded to either ~~to~~ the first or last amino acid residue of the extension peptide and

wherein one uncoupled cysteine is located at the fourth amino acid position of the forty-five amino acids;

~~(b) the extension peptide of (a),~~ optionally further comprising (a) a peptide linker consisting of 1 to 50 amino acid residues inserted between the functional group domain and the uncoupled cysteine residue which is closest to said functional group domain; ~~and~~ or

~~(c) the extension peptide of (b), further comprising~~ (b) an affinity domain for homo- or hetero-multimerization, located between the peptide optional linker and the uncoupled cysteine residue which is closest to the functional group domain.

22-29. (Cancelled)

30. (Currently Amended) The recombinant fusion protein monomer according to claim 21

~~any one of claims 21-29~~, wherein the binding domain ~~or binding subdomain~~ is the N-terminal and the functional group domain is the C-terminal, ~~respectively to all~~ relative to the uncoupled cysteine ~~cysteines~~ in the extension peptide ~~or the binding domain or binding~~ subdomain ~~is C-terminal and the functional group domain is N-terminal, respectively to all the uncoupled cysteines of said recombinant fusion protein monomer~~.

31. (Currently Amended) A covalent homodimer or heterodimer formed between ~~any~~ two recombinant fusion protein monomers of claim 21 ~~claims 21-30~~, connected via at least one intermolecular disulfide bond between the one or more uncoupled cysteine residues ~~cysteines~~ from each said recombinant fusion protein monomer.

32-34. (Cancelled)

35. (Currently Amended) The homo- or heterodimer according to claim 31 ~~any one of claims 31-34~~, wherein at least one of the binding domains ~~domain~~ is an antibody or a fragment thereof.

36. (Previously Presented) The homo- or heterodimer according to claim 35, wherein the fragment is an F_{ab}.

37. (Withdrawn/Currently Amended) A recombinant plasmid comprising a polynucleotide encoding ~~any one of~~ the recombinant fusion protein monomer ~~monomers~~ of claim 21 ~~claims 21-30 or any one of protein chains described in claims 22-30~~.

38. (Withdrawn) A transformed host cell comprising the recombinant plasmid of claim 37.

39. (Currently Amended) A pharmaceutical composition comprising ~~any one of~~ the recombinant fusion protein monomer ~~monomers~~ of claim 21 ~~claims 21-30~~ as an active ingredient.

40. (Currently Amended) A pharmaceutical composition comprising ~~any one of~~ the homo- or heterodimer heterodimers of claim 31 ~~claims 31-36~~ as an active ingredient.

41. (Withdrawn/Currently Amended) A method for producing ~~any one of~~ the recombinant fusion protein monomer ~~monomers~~ of claim 21 ~~claims 21-30 or any one of the protein chains described in claims 22-30~~, comprising the steps of:

(a) constructing a recombinant plasmid of claim 37;

(b) transforming a host cell with the recombinant plasmid of step (a);

(c) culturing the transformed host cell with an appropriate culture medium; and

(d) recovering ~~the~~ a recombinant polypeptide from an extract of the transformed host cell or the culture medium ~~media~~.

42. (Withdrawn/Currently Amended) The method according to claim 41, wherein the binding domain is an antibody F_d fragment ~~and~~ further comprising the step of:

(e) adding an antibody light chain ~~chains~~ to the product of step(d), followed by oxidation to yield an F_{ab} fragment.

43. (Withdrawn/Currently Amended) A method for producing ~~any one of~~ the homo- or heterodimer ~~heterodimers~~ of claim 31 ~~claims 31-36~~ comprising the steps of:

(a) constructing a recombinant plasmid of claim 37;

(b) optionally constructing a recombinant plasmid comprising a polynucleotide encoding an additional recombinant fusion protein monomer;

(c) transforming a host cell with the recombinant plasmid of step (a) and/or optionally the recombinant plasmid of step (b);

(d) culturing the transformed host cell with an appropriate culture medium; and

(e) recovering ~~the~~ a recombinant polypeptide from an extract of the transformed host cell or the culture medium,

wherein the ~~additional~~ optional recombinant fusion protein monomer comprises ~~consists of~~ a binding domain, a functional group domain and an extension peptide ~~connected thereto, wherein the extension peptide is selected from a group consisting of:~~ located between said binding domain and said functional group domain and ~~(f) an extension peptide~~ containing one or more uncoupled cysteine residues,

wherein the one or more uncoupled cysteine residues are located at any position

in the range of the first to forty-fifth amino acid residue from said binding domain ~~residue~~ directly bonded to either ~~to~~ the first or last amino acid residue of the extension peptide, and wherein one uncoupled cysteine is located at the fourth amino acid position of the forty five amino acids; and

~~(g) the extension peptide of (a),~~ wherein the extension peptide optionally further comprises ~~comprising:~~ a peptide linker consisting of 1 to 50 amino acid residues inserted between the functional group domain and the uncoupled cysteine ~~connected to the cysteine residue~~ which is farthest from the binding domain [[;]] and an affinity domain for homo- or hetero-multimerization connected to said optional peptide linker at the end not connected to the binding domain.

44. (Withdrawn) The method according to claim 43, wherein the peptide linker is a flexible linker peptide containing one or more non-bulky amino acids.

45. (Withdrawn) The method according to claim 44, wherein the non-bulky amino acid is glycine, alanine, serine, glutamine, glutamic acid, asparagine or aspartic acid.

46. (Withdrawn/Currently Amended) The method according to claim 41 ~~any one of claims 41-45~~, wherein the host cell of step(c) is a yeast.

47. (Withdrawn/Currently Amended) The method according to claim 43 ~~any one of claims 43-45~~, further comprising the steps of:

(f) denaturing the recovered recombinant polypeptide under a reducing condition;

(g) forming a dimer by renaturing the denatured recombinant polypeptide under an oxidizing condition; and

(h) purifying the dimer.

48. (New) The recombinant fusion protein monomer of claim 21, wherein the extension peptide is an extension peptide located between the binding domain and the functional group domain and contains one uncoupled cysteine residue.

49. (New) The recombinant fusion protein monomer of claim 21, wherein the extension peptide is an extension peptide located between the binding domain and the functional group domain and contains two or three uncoupled cysteine residues.

50. (New) The recombinant fusion protein monomer of claim 21, wherein the extension peptide is a flexible peptide linker containing one or more non-bulky amino acids.

51. (New) The recombinant fusion protein monomer of claim 50, wherein the non-bulky amino acid is glycine, alanine, serine, glutamine, glutamic acid, asparagine or aspartic acid.

52. (New) The recombinant fusion protein monomer of claim 50, wherein the flexible peptide linker has a sequence represented by $I(S/A)T(K/Q)AS(G_4S)_nGGPE$, wherein (n) is an integer ranging from 0 to 8.

53. (New) The recombinant fusion protein monomer of claim 21, wherein the enzyme is a protein containing a toxin-functional group.

54. (New) The recombinant fusion protein monomer of claim 53, wherein the protein containing a toxin-functional group is Pseudomonas exotoxin A.

55. (New) The recombinant fusion protein monomer of claim 21, wherein the uncoupled cysteine is not located at the first or fifteenth amino acid position of the forty-five amino acids.